MOHAMED GOMAA

Assistant Professor, Plant and Microbiology department, Faculty of Science, Assiut University

m_gomaa@aun.edu.eg +201062104501

Researcher Links

ORCID ID HTTPS://ORCID.ORG/0000-0003-1544-3042

SCOPUS ID HTTPS://WWW.SCOPUS.COM/AUTHID/DETAIL.URI?AUTHORID=56203264400

WOS ID HTTPS://WWW.WEBOFSCIENCE.COM/WOS/AUTHOR/RECORD/906329

GOOGLE SCHOLAR HTTPS://SCHOLAR.GOOGLE.COM.EG/CITATIONS?USER=EYPZ26YAAAAJ&HL=EN

Education

B. Sc. **JUNE 2010**

B. Sc. (Botany), Faculty of Science, Assiut University

M. Sc. **SEPTEMBER 2014**

M. Sc. (Microbiology), Faculty of Science, Assiut University

Ph. D. **SEPTEMBER 2018**

Ph. D. (Microbiology), Faculty of Science, Assiut University

Research Articles Published from M. Sc. Thesis

1- Issa, A. A., Hifney, A. F., Abdel-Gawad, K. M., & **Gomaa, M.** (2014). Spatio temporal and environmental factors influencing macroalgal β diversity in the Red Sea, Egypt. Botanica Marina, 57(2), 99-110.

2- Abdel-Gawad, K. M., Hifney, A. F., Issa, A. A., & **Gomaa, M.** (2014). Spatio-temporal, environmental factors, and host identity shape culturable-epibiotic fungi of seaweeds in the Red Sea, Egypt. *Hydrobiologia*, *740*, 37-49.

3- **Gomaa, M.,** Hifney, A. F., Fawzy, M. A., Issa, A. A., & Abdel-Gawad, K. M. (2015). Biodegradation of Palisada perforata (Rhodophyceae) and Sargassum sp.(Phaeophyceae) biomass by crude enzyme preparations from algicolous fungi. *Journal of Applied Phycology*, *27*, 2395-2404.

4- Hifney, A. F., Fawzy, M. A., Abdel-Gawad, K. M., Issa, A. A., & **Gomaa, M.** (2017). In vitro comparative evaluation of antioxidant activity of hydrophobic and hydrophilic extracts from algicolous fungi. *Journal of Aquatic Food Product Technology*, *26*(1), 124-131.

Research Articles Published from Ph. D. Thesis

1- Hifney, A. F., Fawzy, M. A., Abdel-Gawad, K. M., & **Gomaa, M.** (2016). Industrial optimization of fucoidan extraction from Sargassum sp. and its potential antioxidant and emulsifying activities. Food hydrocolloids, 54, 77-88.

2- Abdel-Gawad, K. M., Hifney, A. F., Fawzy, M. A., & **Gomaa, M.** (2017). Technology optimization of chitosan production from Aspergillus niger biomass and its functional activities. *Food Hydrocolloids*, *63*, 593-601.

3- Fawzy, M. A., **Gomaa, M.,** Hifney, A. F., & Abdel-Gawad, K. M. (2017). Optimization of alginate alkaline extraction technology from Sargassum latifolium and its potential antioxidant and emulsifying properties. *Carbohydrate polymers*, *157*, 1903-1912.

4- **Gomaa, M.,** Hifney, A. F., Fawzy, M. A., & Abdel-Gawad, K. M. (2017). Statistical optimization of culture variables for enhancing agarase production by Dendryphiella arenaria utilizing Palisada perforata (Rhodophyta) and enzymatic saccharification of the macroalgal biomass. *Marine Biotechnology*, *19*, 592-600.

5- **Gomaa, M.,** Fawzy, M. A., Hifney, A. F., & Abdel-Gawad, K. M. (2018). Use of the brown seaweed Sargassum latifolium in the design of alginate-fucoidan based films with natural antioxidant properties and kinetic modeling of moisture sorption and polyphenolic release. *Food Hydrocolloids*, *82*, 64-72.

6- **Gomaa, M.,** Hifney, A. F., Fawzy, M. A., & Abdel-Gawad, K. M. (2018). Use of seaweed and filamentous fungus derived polysaccharides in the development of alginate-chitosan edible films containing fucoidan: Study of moisture sorption, polyphenol release and antioxidant properties. *Food hydrocolloids*, *82*, 239-247.

7- Hifney, A. F., Fawzy, M. A., Abdel-Gawad, K. M., & **Gomaa, M.** (2018). Upgrading the antioxidant properties of fucoidan and alginate from Cystoseira trinodis by fungal fermentation or enzymatic pretreatment of the seaweed biomass. *Food chemistry*, *269*, 387-395.

8- Hifney, A. F., **Gomaa, M.,** Fawzy, M. A., & Abdel-Gawad, K. M. (2019). Optimizing a low-cost production process of crude fucoidanase by Dendryphiella arenaria utilizing Cystoseira trinodis (Phaeophyceae) and enzymatic hydrolysis of the brown algal biomass. *Waste and Biomass Valorization*, *10*, 2773-2781.

9- **Gomaa, M.,** Fawzy, M. A., Hifney, A. F., & Abdel-Gawad, K. M. (2019). Optimization of enzymatic saccharification of fucoidan and alginate from brown seaweed using fucoidanase and alginate lyase from the marine fungus Dendryphiella arenaria. *Journal of Applied Phycology*, *31*, 1955-1965.

10- Fawzy, M. A., **Gomaa, M.,** Hifney, A. F., & Abdel-Gawad, K. M. (2020). Fungal agarase production in a cost-effective macroalgal based medium and enzymatic hydrolysis of the alkali extracted macroalgal biomass: an optimization study. *Waste and Biomass Valorization*, *11*, 255-264.

Research Articles Published After Ph. D. Thesis

1- **Gomaa, M.,** & Yousef, N. (2020). Optimization of production and intrinsic viscosity of an exopolysaccharide from a high yielding Virgibacillus salarius BM02: study of its potential antioxidant, emulsifying properties and application in the mixotrophic cultivation of Spirulina platensis. International journal of biological macromolecules, 149, 552-561.

2- Fawzy, M. A., & **Gomaa, M.** (2020). Use of algal biorefinery waste and waste office paper in the development of xerogels: A low cost and eco-friendly biosorbent for the effective removal of congo red and Fe (II) from aqueous solutions. *Journal of environmental management*, *262*, 110380.

3- Fawzy, M. A., & **Gomaa, M.** (2020). Pretreated fucoidan and alginate from a brown seaweed as a substantial carbon source for promoting biomass, lipid, biochemical constituents and biodiesel quality of Dunaliella salina. *Renewable Energy*, *157*, 246-255.

4- Fawzy, M. A., & **Gomaa, M.** (2021). Low-cost biosorption of Methylene Blue and Congo Red from single and binary systems using Sargassum latifolium biorefinery waste/wastepaper xerogel: An optimization and modeling study. *Journal of Applied Phycology*, *33*, 675-691.

5- **Gomaa, M.,** Zien-Elabdeen, A., Hifney, A. F., & Adam, M. S. (2021). Environmental risk analysis of pharmaceuticals on freshwater phytoplankton assemblage: effects on alpha, beta, and taxonomic diversity. *Environmental Science and Pollution Research*, *28*, 9954-9964.

6- Hakiem, A. F. A., Hamdy, A. K., Ali, H. R. H., **Gomaa, M.,** & Aboraia, A. S. (2021). In depth investigation of the retention behavior of structurally related β-blockers on RP-HPLC column: Quality by design and quantitative structure-property relationship complementary approaches for optimization and validation. *Journal of Chromatography B*, *1166*, 122549.

7- Fawzy, M. A., & **Gomaa, M.** (2021). Optimization of citric acid treatment for the sequential extraction of fucoidan and alginate from Sargassum latifolium and their potential antioxidant and Fe (III) chelation properties. *Journal of Applied Phycology*, *33*, 2523-2535.

8- **Gomaa, M.,** Zien-Elabdeen, A., Hifney, A. F., & Adam, M. S. (2021). Phycotoxicity of antibiotics and non-steroidal anti-inflammatory drugs to green algae Chlorella sp. and Desmodesmus spinosus: Assessment of combined toxicity by Box–Behnken experimental design. *Environmental Technology & Innovation*, *23*, 101586.

9- **Gomaa, M.,** & Ali, M. M. (2021). Enhancement of microalgal biomass, lipid production and biodiesel characteristics by mixotrophic cultivation using enzymatically hydrolyzed chitin waste. *Biomass and Bioenergy*, *154*, 106251.

10- Hifney, A. F., Zien-Elabdeen, A., Adam, M. S., & **Gomaa, M.** (2021). Biosorption of ketoprofen and diclofenac by living cells of the green microalgae Chlorella sp. *Environmental Science and Pollution Research*, *28*, 69242-69252.

11- **Gomaa, M.,** Al-Badaani, A. A., Hifney, A. F., & Adam, M. S. (2021). Industrial optimization of alkaline and bleaching conditions for cellulose extraction from the marine seaweed Ulva lactuca. *Journal of Applied Phycology*, *33*, 4093-4103.

12- El-Naeb, E., Fawzy, M., Hifney, A., Adam, M., & **Gomaa, M.** (2022). Environmental impacts of phenol pollution on phytoplankton biodiversity at Assiut region, Egypt. *Assiut University Journal of Multidisciplinary Scientific Research*, *51*(3), 332-357.

13- Gomaa, M., Al-Badaani, A. A., Hifney, A. F., & Adam, M. S. (2022). Utilization of cellulose and ulvan from the green seaweed Ulva lactuca in the development of composite edible films with natural antioxidant properties. *Journal of Applied Phycology*, *34*(5), 2615-2626.

14- Fawzy, M. A., El-Naeb, E. H., Hifney, A. F., Adam, M. S., & **Gomaa, M.** (2022). Growth behavior, phenol removal and lipid productivity of microalgae in mixotrophic and heterotrophic conditions under synergistic effect of phenol and bicarbonate for biodiesel production. *Journal of Applied Phycology*, *34*(6), 2981-2994.

15- Gomaa, M., El-Naeb, E. H., Hifney, A. F., Adam, M. S., & Fawzy, M. A. (2022). Coupling phenol bioremediation and biodiesel production by Tetradesmus obliquus: Optimization of phenol removal, biomass productivity and lipid content. *South African Journal of Botany*, *151*, 604-613.

16- Gomaa, M., El-Naeb, E. H., Hifney, A. F., Adam, M. S., & Fawzy, M. A. (2023). Hormesis effects of phenol on growth and cellular metabolites of Chlorella sp. under different nutritional conditions using response surface methodology. *Environmental Science and Pollution Research*, *30*(19), 56904-56919.

17- Al-Badaani, A. A., Hifney, A. F., Adam, M. S., & **Gomaa, M.** (2023). Low-cost biosorption of Fe (II) and Fe (III) from single and binary solutions using Ulva lactuca-derived cellulose nanocrystals-graphene oxide composite film. *Scientific Reports*, *13*(1), 6422.

18- Gomaa, M., & Aldaby, E. S. (2023). Macroalgal-derived alginate/wastepaper hydrogel to alleviate sunflower drought stress. *Planta*, *257*(6), 112.

19- Gomaa, M., & Danial, A. W. (2023). Seaweed-based alginate/hydroxyapatite composite for the effective removal of bacteria, cyanobacteria, algae, and crystal violet from water. *Journal of Biological Engineering*, *17*(1), 69.

20- Gomaa, M., Ali, S. A., & Hifney, A. F. (2023). Enhancement of phycocyanin productivity and thermostability from Arthrospira platensis using organic acids. *Microbial Cell Factories*, *22*(1), 248.

21- Gomaa, M., & Badr, H. A. (2024). Optimization of oxalic acid treatment for ulvan extraction from Ulva linza biomass and its potential application as Fe (III) chelator. *Algal Research*, *80*, 103536.

22- Gomaa, M., Mahmoud, G. A. E., & Aldaby, E. S. (2024). Enhancing strawberry quality and resistance to Botrytis cinerea using calcareous seaweed-derived Ca2+/carrageenan extracts. *Algal Research*, *80*, 103558.

23- Youssef, A. M., **Gomaa, M.,** Mohamed, A. K. S., & El-Shanawany, A. R. A. (2024). Enhancement of biomass productivity and biochemical composition of alkaliphilic microalgae by mixotrophic cultivation using cheese whey for biofuel production. *Environmental Science and Pollution Research*, *31*(30), 42875-42888.

24- Gomaa, M., Aldaby, E. S., & Mahmoud, G. A. E. (2025). Seed treatment with macroalgal-derived fucoidan and nanohydroxyapatite mitigates Fusarium falciforme ASU26 infection in faba bean: insights from morphological, physiological, anatomical, and FT-IR analyses. *BMC Plant Biology*, *25*(1), 394.

25- Al-Badaani, A. A., Adam, M. S., Hifney, A. F., & **Gomaa, M.** (2025). Development of Ulva lactuca-Derived Cellulose/Nanocellulose Edible Films With Enhanced Light, Oxygen, and Water Vapor Barrier Properties and Natural Antioxidant Properties. *Journal of Aquatic Food Product Technology*, 1-17.

26- **Gomaa, M.,** Ali, S. A., & Hifney, A. F. (2025). Enhancing phycocyanin productivity and thermostability in Synechocystis sp. AUPL1 using Ulva lactuca hydrolysates and ulvan polysaccharides. *Algal Research*, 104053.

Book chapters

1- **Gomaa, M.,** & Dawood, M. F. (2021). Ecotoxicological impacts of arsenic on plants and its remediation approaches. Heavy Metal Toxicity in Plants: Physiological and Molecular Adaptations, 207.
2- **Gomaa, M.** (2022). Biodegradable plastics based on algal polymers: recent advances and applications. *Handbook of biodegradable materials*, 1-31.
3- **Gomaa, M.,** Fawzy, M. A., & El-Sheekh, M. M. (2023). Microalgae-based biofuel synthesis. In *Green Approach to Alternative Fuel for a Sustainable Future* (pp. 89-105). Elsevier.
4- **Gomaa, M. (2024).** Algal Polysaccharides as Promising Anticancer Agents. In *Frontiers in Clinical Drug Research-Anti-Cancer Agents: Volume 9* (pp. 78-115). Bentham Science Publishers.

Review records for international journals

- **58 peer review records were performed from 2017 to 2023.**
- Verified peer reviews are listed in the following link: https://www.webofscience.com/wos/op/peer-reviews/summary
- **Journals:**

International Journal of Biological Macromolecules
Environmental Science and Pollution Research
Brazilian Journal of Chemical Engineering
Sustainable Chemistry and Pharmacy
Biomass Conversion and Biorefinery
Critical Reviews in Biotechnology
Journal of Polymers and the Environment
Biochemical Engineering Journal
Food Bioscience
International Journal of Food Science & Technology
Journal of Applied Phycology
Food Packaging and Shelf Life
Phycology
Bioenergy Research
Food Chemistry
Marine Drugs
Applied Food Research
Food Control
Chemical Papers

Prizes

- High impact factor award from Faculty of Science, Assiut University (2016).
- High impact factor award from Faculty of Science, Assiut University (2018).
- Best research article award from Faculty of Science, Assiut University (2021).